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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/785,006	02/16/2001	Aaron Schoenfeld	303.259US3	5063

7590

04/25/2002

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EXAMINER

PERT, EVAN T

ART UNIT

PAPER NUMBER

2829

DATE MAILED: 04/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/785,006

Applicant(s)

SCHOENFELD, AARON

Examiner

Evan T. Pert

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-25 and 35-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-25 and 35-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11-25 and 35-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Ormond et al. (U.S. Patent 5,128,282).

Ormond et al. teach a semiconductor die which, as depicted by Ormond et al. in Fig. 5, and as is known to one of ordinary skill in the art, the die *inherently* has a “first surface having circuitry thereon” and an opposing “second surface” which is *inherently* “opposite the first side” [col. 3, line 63 to col. 4, line 5]. Each semiconductor die taught by Ormond et al., like applicant, is shaped in a particular way such that die edges are not chipped or cracked or damaged [compare applicant’s page 6, lines 6-19 with Ormond et al.’s, col. 4, lines 57-68].

Ormond et al. teach two offset substantially smooth flat parallel planar perimeter surfaces, as in pending claims 11-25 and 35-43, disposed and located between the first and second major parallel surfaces of the die [compare applicant’s Fig. 6 “bi-level edges” with Ormond et al.’s Fig. 5 *inherently* “bi-level edges”]. These perimeter edge surfaces comprise flat and smooth perimeter surfaces created as sidewall surfaces to grooves 40 and as distinctly different sidewall surfaces from cuts by a high-speed diamond saw blade 60 [col. 4, lines 42-43].

The examiner notes that a high-speed diamond dicing blade inherently “grinds” away “scribe material” such that the ground edge is “substantially smooth and flat”. Ormond et al. also teach that is advantageous to treat groove 40 with an anisotropic etchant which is inherently a form of chemical “polishing” *inherently* resulting in each edge having a “polished” perimeter side surface [col. 5, lines 52-55].

Regarding claims 11, 15 and 25, applicant is reminded of the proper treatment of product-by-process claims {MPEP 2113}. A “layer of scribe material on the die” in these claims is analogous to the perimeter edges of squares of plywood after cutting a larger piece of plywood into the square pieces. One can say that the metal saw blade cuts away plywood material in a “lane” between the squares turning the “scribe material” into sawdust, this “lane” cut out of the “scribe material” being analogous to a dicing “lane” or “street” of a semiconductor wafer, the size of the “scribe” line dependent on saw blade width. In applicant’s own specification, the “scribe material” is the same material as that of the die itself: For a silicon wafer diced into chips, the “scribe material” is reasonably interpreted as the silicon removed from the cut lines such that the exposed perimeter surfaces after dicing are inherently “a layer of scribe material that surrounds the circuitry on the die” since the circuitry is not exposed when the groove 40 and cut from blade 60 are formed [see page 1, lines 21-23 of applicant’s “Background of the Invention”].

Regarding claims 13, 15 and 19, Ormond et al. teach that each die is rectangular as is common with inspection of Fig. 2, since a rectangle can be cut out using the most wafer real estate with the least number of cuts, as is well known to one of ordinary skill.

Regarding claims 11-25 and 35-43, using the terms “flat”, “smooth”, “ground”, “polished”, and “entirely flat” used to describe the quality of perimeter edges, these terms are not quantified by the disclosure. As such, the high-speed diamond saw blade reasonably creates an “entirely flat substantially smooth” surface.

Regarding claims 17 and 39, each edge also has a “polished” offset edge surface based on Ormond et al.’s recommendation to chemically treat the groove 40 to reduce any stresses [col. 5, lines 52-55].

Regarding claim 20, Ormond et al. anticipate the bi-level edges on all four sides of their rectangular die to arrange the each of the die abutted with one another to form a well-aligned 2-D array for sensor applications.

Regarding claim 22, the “means” recited in the claim does not distinguish from any prior art semiconductor die since the mere “existence of a die” is a “means” to polish it [See MPEP 2113].

Response to Arguments

2. Applicant's arguments with respect to claims 11-25 and 35-43 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Evan T. Pert whose telephone number is 703-306-5689. The examiner can normally be reached on M-F (7:00-3:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Michael Sherry can be reached on 703-308-1680. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

ETP
April 8, 2002



MICHAEL SHERRY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800